REMARKS

Claims 1-8 are pending and claims 9-13 are withdrawn.

CLAIM REJECTIONS UNDER 35 U.S.C. § 112

Claims 1-8 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicant submits that the source of compressed air can be any suitable source. Applicant respectfully submits that the amendments of Claims 1 and 4 render this rejection moot.

CLAIM REJECTIONS UNDER 35 U.S.C. § 103(a)

Claims 1-8 stand rejected under 35 U.S.C. § 103(a) as obvious over Camp (USPN 2,200,155) in view of Stephens (USPN 5,803,665) and Gray (USPN 6,046,255). Applicants respectfully traverse this rejection.

Camp is cited as disclosing a method of combining a foamed substance with gypsum to form a gypsum slurry, casting said slurry onto a continuous web for forming a gypsum board, and that formation of small foam bubbles is advantageous. (Office Action, Page 3).

Stephens discloses a method and apparatus for production of a quick-setting foamed cement grout. Finished foam and cement slurry are mixed at metered rates to form a foamed cement grout which is pumped to a wye connection proximate a remote injection site. Sodium silicate solution is added at the wye connection at a metered rate, using a second metering pump. The sodium silicate solution mixes with the foamed cement grout to greatly accelerate the setting time thereof, and compressed air may also be added to accelerate the passage of the material through the injection hose and nozzle. The quick-setting material is particularly suited for use with a tunnel boring machine (TBM), to grout the annular cavity between the tunnel bore and the segmented liner which is installed therein. (Abstract). Once the foamed cement slurry and the sodium silicate solution are combined at the wye connection, the mixture begins to set up at a highly accelerated rate, with solidification occurring within a few seconds to a few minutes. (Column 8, Line 66 – Column 9, Line 6). There is no reference to gypsum in the specification of Stephens.

Referring to FIG. 4, Stephens further discloses that air and foam solution lines meet at a venturi mixing unit 166; the flow of air from the side of the venturi creates a vacuum effect which picks up the foam solution entering from the bottom of the unit, and mixes with this and forces the solution/air mixture out the discharge side of the unit and through foam conditioner 170. (Column 7, Lines 55-60). The finished foam material exits foam conditioner 170 through the foam conduit 122. (Column 8, Lines 1-2).

The foamed grout conduit and sodium silicate conduit meet at a wye connection 132 at which the two components are mixed. Pressurized air is injected via line 134 proximate the outlet end of the wye, so that the resultant mixture--cement slurry, sodium silicate and air--is forced through a downline static mixer 136. The resulting mixture, which is essentially a cellular foamed cement grout having a greatly accelerated setting rate due to the sodium silicate component, flows through a relatively short injection hose and is directed into the cavity for placement. (Column 5, Lines 21-31). A downline static mixer filled with media at that point in a gypsum wallboard production process would not be suitable, as it would plug in a matter of hours.

Gray relates generally to cellular, foamed or air-entrained concrete, or concrete containing air cells or voids throughout its volume, and particularly to foam and foam/cement mixtures for making cellular concrete. (Column 1, Lines 12-16). Referring to FIGS. 3 and 4, Gray discloses an atomization unit comprising an outer tube and an inner tube extending coaxially along the length of the outer tube. Inlet 21 is connected to a first end of the inner tube, and the inner tube has a series of openings, or venturi passages, 27 extending along its length which connect an inner chamber extending along the inside of inner tube to an outer annular chamber surrounding the tube. Second inlet 22 is connected to the outer chamber. (Column 5, Lines 35-45). A first inlet 21 receives a gas under pressure and a second, transverse inlet 22 receives a mixture of water and a foaming agent. (Column 5, Lines 21-24). The mixture of water and foaming agent under pressure is forced through openings 27 into the inner chamber, causing the mixture to atomize into small droplets. (Column 6, Lines 7-11). In a mixing chamber, the droplets are forced through multiple randomly oriented tubular openings in eyelets with severe changes

in direction, compression, expansion and violent agitation, which causes a foam to be produced which comprises fine bubbles each containing water. (Column 6, Line 65 – Column 7, Line 3). Thus, the pressurized gas draws the foam solution through the venturi passages as a metering device, not as a foam generator. There is no reference to gypsum in the specification of Gray.

Claim 1 recites a method of manufacturing gypsum board, comprising: applying compressed air to a first inlet of an input end of a tube, thereby creating a suction, which draws foaming agent in through a secondary inlet of the input end of the tube and forms a mixture of the compressed air and the foaming agent, wherein the tube includes the input end, an output end, and a venturi located between the input end and the output end; passing the mixture through the venturi and out the output end, thereby generating a foam; combining the foam with gypsum and water to form a gypsum slurry; and casting the gypsum slurry onto a continuous web for forming a gypsum board.

Claim 4 recites a method of manufacturing gypsum board, comprising: applying compressed air to a first inlet of an input end of a tube, thereby creating a suction, which draws foaming agent in through a secondary inlet of the input end of the tube and forms a mixture of the compressed air and the foaming agent, wherein the tube includes the input end, an output end, and a tapered region between the input end and the output end, wherein a diameter of the tube decreases in the downstream direction in the tapered region; passing the mixture through the tapered region and out the output end, thereby generating a foam; combining the foam with gypsum and water to form a gypsum slurry; and casting the gypsum slurry onto a continuous web for forming a gypsum board.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of

success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). MPEP § 2142.

Applicant respectfully submits that the proposed combination of Camp, Stephens, and Gray does not disclose or suggest all the claim limitations. First, Applicant points out that while both Stephens and Gray refer to use of "venturi" in each of their respective systems, both also require a static foam generator with a media filled core after the "venturi" in order to form their respective aerated slurries. The presently claimed methods eliminates the need for a media filled static mixer. Thus, Claim 1 recites forming a foam by passing a mixture of compressed air and foaming agent through a venturi and out an output end of a tube, combining the foam with gypsum and water to form a gypsum slurry, and casting the gypsum slurry onto a continuous web for forming a gypsum board, and Claim 4 recites forming a foam by passing a mixture of compressed air and foaming agent through a tapered region and out an output end of a tube, combining the foam with gypsum and water to form a gypsum slurry, and casting the gypsum slurry onto a continuous web for forming a gypsum board. Furthermore, neither Stephens nor Gray refers to use with gypsum. The apparatus of Stephens cannot be used with gypsum because the media filled static mixer would plug in a matter of hours.

Accordingly, Applicants respectfully request that the rejection of claims 1-8 be withdrawn.

CONCLUSION

Applicants believe they have responded to all matters raised in the above referenced final Office Action and that the application is now in condition for allowance. If the Examiner has any questions concerning this Application or this Reply, the Examiner is invited to contact the undersigned.

Respectfully submitted,

BUCHANAN INGERSOLL & ROONEY PC

Date: February 27, 2007

By: /Asaf Batelman/
Asaf Batelman
Registration No. 52600

P.O. Box 1404
Alexandria, VA 22313-1404
703 836 6620